

Informix Performance Tuning Webcast Series Part 2

By Art Kagel

The Webcast will start soon!

Informix Performance Tuning Webcast Series

By Art Kagel



Art Kagel, Principal Consultant of Advanced DataTools Corporation. Art is a member of the IIUG Board of Directors was presented with one of the Inaugural Data Champion awards by IBM.

The Webcast will start soon!

Agenda

Advanced SMI Data Mining

- Information you can't get any other way
- Beyond onstat

Going beyond Lester's Sysmaster Session

Monitoring Ontape

Scene: A cron job or your system backup scheduler runs your archives daily at the same time. It's running now and you want to know how far along it is.

Monitoring Ontape

```
$ onstat -g arc
```

```
IBM Informix Dynamic Server Version 11.50.FC7IE -- On-Line -- Up 12 days  
01:01:18 -- 509364 Kbytes
```

num	DBSpace	Q	Size	Q	Len	Buffer	partnum	size	scanner
Dbspaces - Archive Status									
	name	number	level	date		log		log-position	
	rootdbs	1	0	06/21/2010.10:28		6479		0xfb024	
	data1	2	0	06/21/2010.10:28		6479		0xfb024	
	sblobspace1	4	0	06/21/2010.10:28		6479		0xfb024	
	s9_sbpc	5	0	06/21/2010.10:28		6479		0xfb024	

Monitoring Ontape

```
SELECT st.*, sr.*, sp.*  
FROM systcblst AS st, sysrstcb AS sr, sysstesprof AS sp  
WHERE st.tid = sr.tid  
      AND sr.sid = sp.sid  
      AND st.name = 'ontape';
```

Monitoring Ontape

Interesting columns from the output:

<code>sid</code>	520
<code>nfiles</code>	6
<code>pagreads</code>	69603

Monitoring Ontape

Percent completed:

```
SELECT ((pagereads::decimal(10,4) / (  
    select sum((chksize - nfree) / (sd.pagesize / 1024))  
    from syschunks sc, sysdbspaces sd  
    WHERE sc.dbsnum = sd.dbsnum  
        AND sd.is_temp = 0  
    )) * 100.00)  
FROM systcblst AS st, sysrstcb AS sr, syssesprof AS sp  
WHERE st.tid = sr.tid  
    AND sr.sid = sp.sid  
    AND st.name = 'ontape';
```

Temp space problem

Scene: Your temp dbspaces are filling up. Why?

What temp tables?

```
SELECT *  
FROM systabnames n, systabinfo i  
WHERE (  
    bitval(i.ti_flags, 32) = 1 { System Temp }  
    OR bitval(i.ti_flags, 64) = 1 { User Temp }  
    OR bitval(i.ti_flags, 128) = 1 { Sort work Temp }  
) AND i.ti_partnum = n.partnum;
```

What temp tables?

partnum	1048589
dbname	sysmaster
owner	informix
tabname	ggtmp
collate	en_US.819
ti_partnum	1048589
ti_flags	35105
ti_rowsize	437
ti_ncols	4
ti_nkeys	0
ti_nextns	1

ti_pagesize	2048
ti_created	1277133061
ti_serialv	1
ti_fextsiz	8
ti_nextsiz	8
ti_nptotal	8
ti_npused	2
ti_npdata	1
ti_octptnm	-1
ti_nrows	2

What temp tables?

More information:

```
SELECT *
```

```
FROM systabnames n, sysactptnhdr i
```

```
WHERE (
```

```
    bitval(i.pn_flags, 32) = 1 { System Temp }
```

```
    OR bitval(i.pn_flags, 64) = 1 { User Temp }
```

```
    OR bitval(i.pn_flags, 128) = 1 { Sort work Temp }
```

```
) AND i.partnum = n.partnum;
```

What temp tables?

partnum	1048589	nptotal	24	glscollname	en_US.819
dbname	sysmaster	npused	22	pf_rqlock	1
owner	informix	npdata	21	pf_wtlock	0
tabname	fred	lockid	1048589	pf_deadlk	0
collate	en_US.819	nrows	245	pf_dltouts	0
address	1651458088	flags	4098	pf_isread	82
partnum	1048589	ucount	0	pf_iswrite	245
pn_flags	2401	chunk	1	pf_isrwrite	0
rowsize	0	offset	26	pf_isdelete	0
ncols	3	lastidxpn	0	pf_bfcread	498
nkeys	0	nextns1	1	pf_bfcwrite	311
nextns	1	nextns2	1	pf_seqscans	0
pagesize	2048	badkeys	0	pf_dskreads	0
created	1277138433	Altstmp	543433223	pf_dskwrites	21
cur_serial4	276	ocount	0		
cur_bigserial	1	skstamp	543433587		
cur_serial8	1	pta_oldvers	0		
Fextsiz	8	pta_newvers	0		
nextsiz	8	pta_bmpagenum	0		
		pta_totpgs	0		
		pta_opems_allocd	0		
		pta_opems_filled	0		

Sequential Scan Problem

Scene: onstat -p shows an unusual number of sequential scans.

Sequential Scan Tables

```
SELECT first 20 dbname, tablename, seqscans, seqscans * nrows  
FROM sysptprof sp, sysptnhdr sh  
WHERE sp.partnum = sh.partnum  
ORDER BY 4 DESC, 1, 2;
```

Sequential Scan Sessions

```
SELECT first 20 hostname, username, pid, ss.sid,  
       feprogram, seqscans  
FROM syssessions ss, sys sesprof sp  
WHERE ss.sid = sp.sid  
      AND seqscans > 0  
ORDER BY 6 DESC, 5, 2, 1;
```

Sequential Scan Queries

```
SELECT first 20 hostname, username, pid, ss.sid,  
       sqs_statement, seqscans  
FROM syssessions ss, sysstesprof sp, sysssqlstat sq  
WHERE ss.sid = sp.sid  
      AND sp.sid = sq.sqs_sessionid  
      AND seqscans > 0  
ORDER BY 6 DESC, 5, 2, 1;
```

What tables are in cache?

Scene: You want to know what tables are taking up the most space in the buffer cache.

What tables are in cache?

```
$ onstat -P
```

```
IBM Informix Dynamic Server Version 11.50.FC7IE -- On-Line -- Up 12
days 01:05:40 -- 509364 Kbytes
```

```
Buffer pool page size: 2048
```

partnum	total	btree	data	other	dirty
0	29	5	23	1	0
1048577	1500	0	1223	277	0
1048578	6	3	2	1	0
1048581	2	0	1	1	0
. . .					
5242885	4	0	3	1	0
Totals:	200000	139180	58820	2000	0

```
Percentages:
```

```
Data 69.59
```

```
Btree 29.41
```

```
Other 1.00
```

What tables are in cache?

```
SELECT first 20 dbsname, tabname, count(*)  
FROM sysextents se, sysbufhdr sb  
WHERE se.chunk = sb.chunk  
      AND (sb.offset between se.offset and (se.offset + se.size))  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```

What tables are in cache?

```
dbsname      art
tabname      regresstab
(count(*)    30737
```

```
dbsname      data1
tabname      TBLSpace
(count(*)    2439
```

```
dbsname      rootdbs
tabname      TBLSpace
(count(*)    1503
```

```
dbsname      sysadmin
tabname      mon_table_profile
(count(*)    1502
```

How effective is my cache?

Scene: Is my current cache effective?

How effective is my cache?

```
Onstat -g ppf
```

```
IBM Informix Dynamic Server Version 11.50.FC7IE -- On-Line -- Up 12 days 21:19:41  
-- 509364 Kbytes
```

Partition profiles

partnum	lkrqs	lkwts	dlks	touts	isrd	iswrt	isrwt	isdel	bfrd	bfwrt	seqsc	
rhitratio												
0x2	0	0	0	0	268	0	0	0	268	0	0	98
0x6	0	0	0	0	14	0	0	0	0	0	0	0
0x7	0	0	0	0	1	0	0	0	0	0	0	0
. . .												
0x100587	25	0	0	0	24	0	0	0	55	0	0	93
0x100588	3	0	0	0	3	0	0	0	7	0	0	72
0x100589	2	0	0	0	2	0	0	0	6	0	0	50
0x10058a	1	0	0	0	1	0	0	0	3	0	0	34
0x10058b	0	0	0	0	0	0	0	0	0	0	0	0
0x10058c	0	0	0	0	4	0	0	0	4	0	1	25
. . .												
0x1005a2	0	0	0	0	0	0	0	0	0	0	0	0
0x1005a3	0	0	0	0	0	0	0	0	0	0	0	0
0x1005a4	0	0	0	0	0	0	0	0	0	0	0	0
0x1005a5	0	0	0	0	0	0	0	0	0	0	0	0

How effective is my cache?

```
SELECT reusecnt, count(*)  
FROM sysbufhdr  
GROUP BY 1  
ORDER BY 1 desc;
```

How effective is my cache?

reusecnt (count (*))

252696	1
115037	1
82464	1
72577	6
62353	1
51105	1
51002	1
49338	1

How effective is my cache?

```
SELECT first 20 dbname, tablename, round(avg(reusecnt))::int
FROM sysextents se, sysbufhdr sb
WHERE se.chunk = sb.chunk
      AND (sb.offset between se.offset and (se.offset + se.size))
GROUP BY 1, 2
ORDER BY 3 DESC;
```

How effective is my cache?

dbname sysadmin
tablename mon_config
(avg) 5264

dbname art
tablename sysviews
(avg) 4579

dbname sysadmin
tablename mon_table_names_idx1
(avg) 2797

dbname sysadmin
tablename ix_ph_run_03
(avg) 1577

How effective is my cache?

```
SELECT FIRST 10 a.dbsname, a.tabname,
  (((b.count::DECIMAL(20)) / (a.count::DECIMAL(20))) * 100.00)::DECIMAL(8,2)
AS reuse_percent
FROM (
  SELECT dbsname, tabname, count(*) AS count
  FROM sysextents se, sysbufhdr sb
  WHERE se.chunk = sb.chunk
  AND (sb.offset BETWEEN se.offset AND (se.offset + se.size))
  GROUP BY 1, 2) AS a,
  (
  SELECT dbsname, tabname, count(*) AS count
  FROM sysextents se, sysbufhdr sb
  WHERE se.chunk = sb.chunk
  AND (sb.offset BETWEEN se.offset AND (se.offset + se.size))
  AND reusecnt > 0
  GROUP BY 1, 2) AS b
WHERE a.dbsname = b.dbsname and a.tabname = b.tabname
ORDER BY 3 DESC;
```

How effective is my cache?

```
dbsname      stores_demo
tabname      104_12
(expression) 100.00

dbsname      sysadmin
tabname      aus_cmd_info
(expression) 100.00

dbsname      pinn_db
tabname      cgdcolmr
(expression) 100.00
. . .
dbsname      art
tabname      myptnhdridx
effective    88.89
. . .
```

Next Session

Focus on data collection and historical analysis

Teaser: 4th Session

Tools for Monitoring and Managing your server.

Questions?

Future Web Casts

**Informix Database Performance Tuning
by Art Kagel, Principal Consultant,
Advanced DataTools Corporation**

Tuesday July 20, 2010 at 2:00pm EST

Tuesday August 24, 2010 at 2:00pm EST

<http://www.advanceddatatools.com/Informix/Webcasts.html>

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Advanced DataTools

Thank You

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